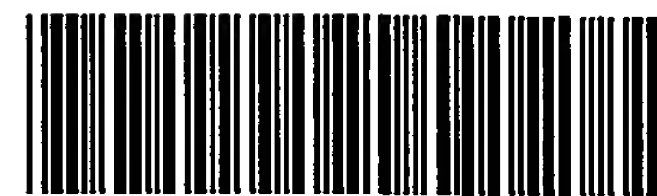


# 13



OIPE

## RAW SEQUENCE LISTING

DATE: 09/01/2004

PATENT APPLICATION: US/09/825,423C

TIME: 17:20:04

Input Set : A:\ID01152 Sequence Listing.txt

Output Set: N:\CRF4\09012004\I825423C.raw

3 <110> APPLICANT: Weber, Patricia C.  
 4 Reichert, Paul  
 5 Madison, Vincent S.  
 6 Wyss, Daniel  
 7 Yao, Nanhua  
 8 Liu, Dingjiang  
 9 Gesell, Jennifer  
 11 <120> TITLE OF INVENTION: Hepatitis C Virus NS3 Helicase Fragments  
 13 <130> FILE REFERENCE: ID01152 US  
 15 <140> CURRENT APPLICATION NUMBER: US 09/825,423C  
 16 <141> CURRENT FILING DATE: 2001-04-03  
 18 <150> PRIOR APPLICATION NUMBER: US 60/194,419  
 19 <151> PRIOR FILING DATE: 2000-04-04  
 21 <160> NUMBER OF SEQ ID NOS: 16  
 23 <170> SOFTWARE: PatentIn Ver. 2.1  
 25 <210> SEQ ID NO: 1  
 26 <211> LENGTH: 631  
 27 <212> TYPE: PRT  
 28 <213> ORGANISM: Hepatitis C virus  
 30 <400> SEQUENCE: 1  
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 32 1 5 10 15  
 34 Ile Ile Thr Ser Leu Thr Gly Arg Asp Lys Asn Gln Val Glu Gly Glu  
 35 20 25 30  
 37 Val Gln Ile Val Ser Thr Ala Thr Gln Thr Phe Leu Ala Thr Cys Ile  
 38 35 40 45  
 40 Asn Gly Val Cys Trp Thr Val Tyr His Gly Ala Gly Thr Arg Thr Ile  
 41 50 55 60  
 43 Ala Ser Pro Lys Gly Pro Val Ile Gln Met Tyr Thr Asn Val Asp Gln  
 44 65 70 75 80  
 46 Asp Leu Val Gly Trp Pro Ala Pro Gln Gly Ser Arg Ser Leu Thr Pro  
 47 85 90 95  
 49 Cys Thr Cys Gly Ser Ser Asp Leu Tyr Leu Val Thr Arg His Ala Asp  
 50 100 105 110  
 52 Val Ile Pro Val Arg Arg Arg Gly Asp Ser Arg Gly Ser Leu Leu Ser  
 53 115 120 125  
 55 Pro Arg Pro Ile Ser Tyr Leu Lys Gly Ser Ser Gly Gly Pro Leu Leu  
 56 130 135 140  
 58 Cys Pro Ala Gly His Ala Val Gly Leu Phe Arg Ala Ala Val Cys Thr  
 59 145 150 155 160  
 61 Arg Gly Val Thr Lys Ala Val Asp Phe Ile Pro Val Glu Asn Leu Glu  
 62 165 170 175  
 64 Thr Thr Met Arg Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala

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65		180		185		190										
67	Val	Pro	Gln	Ser	Phe	Gln	Val	Ala	His	Leu	His	Ala	Pro	Thr	Gly	Ser
68			195					200					205			
70	Gly	Lys	Ser	Thr	Lys	Val	Pro	Ala	Ala	Tyr	Ala	Ala	Gln	Gly	Tyr	Lys
71		210					215						220			
73	Val	Leu	Val	Leu	Asn	Pro	Ser	Val	Ala	Ala	Thr	Leu	Gly	Phe	Gly	Ala
74	225					230					235				240	
76	Tyr	Met	Ser	Lys	Ala	His	Gly	Val	Asp	Pro	Asn	Ile	Arg	Thr	Gly	Val
77				245					250					255		
79	Arg	Thr	Ile	Thr	Thr	Gly	Ser	Pro	Ile	Thr	Tyr	Ser	Thr	Tyr	Gly	Lys
80				260					265					270		
82	Phe	Leu	Ala	Asp	Gly	Gly	Cys	Ser	Gly	Gly	Ala	Tyr	Asp	Ile	Ile	Ile
83			275					280					285			
85	Cys	Asp	Glu	Cys	His	Ser	Thr	Asp	Ala	Thr	Ser	Ile	Leu	Gly	Ile	Gly
86		290					295					300				
88	Thr	Val	Leu	Asp	Gln	Ala	Glu	Thr	Ala	Gly	Ala	Arg	Leu	Val	Val	Leu
89	305					310				315					320	
91	Ala	Thr	Ala	Thr	Pro	Pro	Gly	Ser	Val	Thr	Val	Pro	His	Pro	Asn	Ile
92				325						330					335	
94	Glu	Glu	Val	Ala	Leu	Ser	Thr	Thr	Gly	Glu	Ile	Pro	Phe	Tyr	Gly	Lys
95			340						345				350			
97	Ala	Ile	Pro	Leu	Glu	Val	Ile	Lys	Gly	Gly	Arg	His	Leu	Ile	Phe	Cys
98			355					360					365			
100	His	Ser	Lys	Lys	Lys	Cys	Asp	Glu	Leu	Ala	Ala	Lys	Leu	Val	Ala	Leu
101		370					375					380				
103	Gly	Ile	Asn	Ala	Val	Ala	Tyr	Tyr	Arg	Gly	Leu	Asp	Val	Ser	Val	Ile
104	385					390					395				400	
106	Pro	Thr	Asn	Gly	Asp	Val	Val	Val	Val	Ala	Thr	Asp	Ala	Leu	Met	Thr
107				405					410					415		
109	Gly	Phe	Thr	Gly	Asp	Phe	Asp	Ser	Val	Ile	Asp	Cys	Asn	Thr	Cys	Val
110			420						425					430		
112	Thr	Gln	Thr	Val	Asp	Phe	Ser	Leu	Asp	Pro	Thr	Phe	Thr	Ile	Glu	Thr
113			435					440					445			
115	Thr	Thr	Leu	Pro	Gln	Asp	Ala	Val	Ser	Arg	Thr	Gln	Arg	Arg	Gly	Arg
116		450					455					460				
118	Thr	Gly	Arg	Gly	Lys	Pro	Gly	Ile	Tyr	Arg	Phe	Val	Ala	Pro	Gly	Glu
119	465					470				475					480	
121	Arg	Pro	Ser	Gly	Met	Phe	Asp	Ser	Ser	Val	Leu	Cys	Glu	Cys	Tyr	Asp
122				485					490					495		
124	Ala	Gly	Cys	Ala	Trp	Tyr	Glu	Leu	Thr	Pro	Ala	Glu	Thr	Thr	Val	Arg
125			500						505					510		
127	Leu	Arg	Ala	Tyr	Met	Asn	Thr	Pro	Gly	Leu	Pro	Val	Cys	Gln	Asp	His
128			515					520					525			
130	Leu	Glu	Phe	Trp	Glu	Gly	Val	Phe	Thr	Gly	Leu	Thr	His	Ile	Asp	Ala
131		530					535					540				
133	His	Phe	Leu	Ser	Gln	Thr	Lys	Gln	Ser	Gly	Glu	Asn	Phe	Pro	Tyr	Leu
134	545					550				555					560	
136	Val	Ala	Tyr	Gln	Ala	Thr	Val	Cys	Ala	Arg	Ala	Gln	Ala	Pro	Pro	Pro
137				565					570					575		

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Input Set : A:\ID01152 Sequence Listing.txt

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139 Ser Trp Asp Gln Met Trp Lys Cys Leu Ile Arg Leu Lys Pro Thr Leu
140          580          585          590
142 His Gly Pro Thr Pro Leu Leu Tyr Arg Leu Gly Ala Val Gln Asn Glu
143          595          600          605
145 Val Thr Leu Thr His Pro Ile Thr Lys Tyr Ile Met Thr Cys Met Ser
146          610          615          620
148 Ala Asp Leu Glu Val Val Thr
149 625          630
153 <210> SEQ ID NO: 2
154 <211> LENGTH: 4
155 <212> TYPE: PRT
156 <213> ORGANISM: Artificial Sequence
158 <220> FEATURE:
159 <223> OTHER INFORMATION: Mutated Hepatitis C virus peptide
161 <400> SEQUENCE: 2
162 Ser Asp Gly Lys
163 1
167 <210> SEQ ID NO: 3
168 <211> LENGTH: 148
169 <212> TYPE: PRT
170 <213> ORGANISM: Hepatitis C virus
172 <400> SEQUENCE: 3
173 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
174 1          5          10          15
176 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
177          20          25          30
179 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
180          35          40          45
182 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
183          50          55          60
185 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
186 65          70          75          80
188 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
189          85          90          95
191 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
192          100          105          110
194 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
195          115          120          125
197 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
198          130          135          140
200 Ala Thr Ala Thr
201 145
205 <210> SEQ ID NO: 4
206 <211> LENGTH: 142
207 <212> TYPE: PRT
208 <213> ORGANISM: Hepatitis C virus
210 <400> SEQUENCE: 4
211 Gly Ser His Met Gly Ser Val Thr Val Pro His Pro Asn Ile Glu Glu
212 1          5          10          15

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```

214 Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys Ala Ile
215           20           25           30
217 Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys His Ser
218           35           40           45
220 Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu Gly Ile
221           50           55           60
223 Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile Pro Thr
224           65           70           75           80
226 Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr Gly Phe
227           85           90           95
229 Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Ser Asp Gly Lys
230           100          105          110
232 Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr Gly Arg
233           115          120          125
235 Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
236           130          135          140
240 <210> SEQ ID NO: 5
241 <211> LENGTH: 288
242 <212> TYPE: PRT
243 <213> ORGANISM: Hepatitis C virus
245 <400> SEQUENCE: 5
246 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
247   1           5           10           15
249 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
250           20           25           30
252 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
253           35           40           45
255 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
256           50           55           60
258 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
259   65           70           75           80
261 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
262           85           90           95
264 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
265           100          105          110
267 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
268           115          120          125
270 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
271           130          135          140
273 Ala Thr Ala Thr Pro Pro Gly Ser Val Thr Val Pro His Pro Asn Ile
274 145           150          155           160
276 Glu Glu Val Ala Leu Ser Thr Thr Gly Glu Ile Pro Phe Tyr Gly Lys
277           165          170          175
279 Ala Ile Pro Leu Glu Val Ile Lys Gly Gly Arg His Leu Ile Phe Cys
280           180          185          190
282 His Ser Lys Lys Lys Cys Asp Glu Leu Ala Ala Lys Leu Val Ala Leu
283           195          200          205
285 Gly Ile Asn Ala Val Ala Tyr Tyr Arg Gly Leu Asp Val Ser Val Ile
286           210          215          220

```

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Input Set : A:\ID01152 Sequence Listing.txt

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288 Pro Thr Asn Gly Asp Val Val Val Val Ala Thr Asp Ala Leu Met Thr
289 225                230                235                240
291 Gly Phe Thr Gly Asp Phe Asp Ser Val Ile Asp Cys Asn Thr Ser Asp
292                245                250                255
294 Gly Lys Pro Gln Asp Ala Val Ser Arg Thr Gln Arg Arg Gly Arg Thr
295                260                265                270
297 Gly Arg Gly Lys Pro Gly Ile Tyr Arg Phe Val Ala Pro Gly Glu Arg
298                275                280                285
305 <210> SEQ ID NO: 6
306 <211> LENGTH: 241
307 <212> TYPE: PRT
308 <213> ORGANISM: Hepatitis C virus
310 <400> SEQUENCE: 6
311 Gly Ser His Met Ser Pro Val Phe Thr Asp Asn Ser Ser Pro Pro Ala
312 1          5          10          15
314 Val Pro Gln Ser Phe Gln Val Ala His Leu His Ala Pro Thr Gly Ser
315          20          25          30
317 Gly Lys Ser Thr Lys Val Pro Ala Ala Tyr Ala Ala Gln Gly Tyr Lys
318          35          40          45
320 Val Leu Val Leu Asn Pro Ser Val Ala Ala Thr Leu Gly Phe Gly Ala
321          50          55          60
323 Tyr Met Ser Lys Ala His Gly Val Asp Pro Asn Ile Arg Thr Gly Val
324 65          70          75          80
326 Arg Thr Ile Thr Thr Gly Ser Pro Ile Thr Tyr Ser Thr Tyr Gly Lys
327          85          90          95
329 Phe Leu Ala Asp Gly Gly Cys Ser Gly Gly Ala Tyr Asp Ile Ile Ile
330          100         105         110
332 Cys Asp Glu Cys His Ser Thr Asp Ala Thr Ser Ile Leu Gly Ile Gly
333          115         120         125
335 Thr Val Leu Asp Gln Ala Glu Thr Ala Gly Ala Arg Leu Val Val Leu
336          130         135         140
338 Ala Thr Ala Thr Pro Pro Gly Ser Gly Met Phe Asp Ser Ser Val Leu
339 145          150         155         160
341 Cys Glu Cys Tyr Asp Ala Gly Cys Ala Trp Tyr Glu Leu Thr Pro Ala
342          165         170         175
344 Glu Thr Thr Val Arg Leu Arg Ala Tyr Met Asn Thr Pro Gly Leu Pro
345          180         185         190
347 Val Cys Gln Asp His Leu Glu Phe Trp Glu Gly Val Phe Thr Gly Leu
348          195         200         205
350 Thr His Ile Asp Ala His Phe Leu Ser Gln Thr Lys Gln Ser Gly Glu
351          210         215         220
353 Asn Phe Pro Tyr Leu Val Ala Tyr Gln Ala Thr Val Cys Ala Arg Ala
354 225          230         235         240
356 Gln
361 <210> SEQ ID NO: 7
362 <211> LENGTH: 4
363 <212> TYPE: PRT
364 <213> ORGANISM: Artificial Sequence
366 <220> FEATURE:

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VERIFICATION SUMMARY

DATE: 09/01/2004

PATENT APPLICATION: US/09/825,423C

TIME: 17:20:05

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